SOUTHERN PACIFIC COMPANY

TUCSON DIVISION SPECIAL INSTRUCTIONS

No. 8

EFFECTIVE SUNDAY, JANUARY 17, 1960
AT 12:01 A. M.,
MOUNTAIN STANDARD TIME
SUPERSEDING SPECIAL INSTRUCTIONS No. 7

THESE INSTRUCTIONS CONSTITUTE A PART OF THE TIMETABLE CURRENTLY IN EFFECT

W. D. LAMPRECHT,
General Manager.

E. D. MOODY,
J. A. McKINNON,
Assistant General Managers.

J. M. HATCHER,
General Superintendent of Transportation.

J. P. GRIFFIN,
Superintendent of Transportation.

D. R. KIRK,
Superintendent.

⊙ This symbol indicates change, except changes on rating of engines pages are not so indicated.

⊙**RULE A.** Employes must know that they have in their copy of Rules and Regulations of the Transportation Department effective December 1, 1951, page revisions as listed on pages 1 and 2 revised April 1, 1959.

RULE M. Employes are warned that it is dangerous to ride on top or side of cars while passing points where impaired clearance exists, and that they must protect themselves from injury. See list of impaired clearances on main track and siding.

There are numerous other structures with impaired clearance on yard and station tracks on the division, and employes must be familiar with their location and avoid personal injury.

⊙**RULES 10-G, 10-H and 10-I.** When unattended red flags or red lights, yellow signals, red CONDITIONAL STOP signs and yellow PROCEED PREPARED TO STOP signs are displayed between siding switches, they must be duplicated to the right of the siding in direction of approach. If clearance between siding and main track does not permit display of these signals to the right of the siding in direction of approach, signals may be displayed to the left of the siding. Display of these signals to the left of a siding in direction of approach must be respected as though they were displayed in accordance with these rules.

⊙**RULE 10-H** is revised to read:

"When a yellow signal is required it will be displayed to the right of track in direction of approach, one and one-half miles from structure or track over which speed of trains must be restricted. Where two or more main tracks are affected the signal will be displayed for each track the same as if it were a single track.

"Trains must not exceed the speed specified by train order, or timetable bulletin, or restricted speed if no different speed is specified, while passing over the structure or track affected, until the rear of train clears the restricted limit.

"Where yellow signals are displayed within limits of a length of track over which a maximum speed is designated in train order or timetable bulletin and no maximum speed is otherwise specified for the particular section of track protected by these yellow signals, trains must not exceed restricted speed thereover. When yellow signals are displayed and the speed is not specified by train order or timetable bulletin, trains must proceed expecting to find unattended red signal that may be displayed one and one-half miles beyond the yellow signal.

"A green signal will be displayed to the right of each track at the limit if restriction, and trainman will give signal 12(c) after rear of train has passed it.

"A yellow flag by day and a yellow light by night may be displayed on speed sign post to direct attention to figures on speed sign, and will not be considered a yellow signal as prescribed by this rule."

⊙**RULE 10-I** is revised to read:

"When Form Y train order is in effect an unattended red sign reading 'CONDITIONAL STOP' will be displayed 1,000 feet in advance of where main track is obstructed or impassable. Trains must approach prepared to stop short of this sign unless the engineer is orally authorized to proceed beyond the stop sign by foreman in charge of work or a proceed signal with a green flag or light is received. A yellow sign reading 'PROCEED PREPARED TO STOP' will be displayed one and one-half miles in advance of the red sign.

"Before orally authorizing a train to proceed, foreman must inform engineer the maximum speed permitted over restricted track.

"A green signal will be displayed to the right of each track at the limit of restriction unless foreman orally authorizes train to proceed at maximum speed. Trainman will give signal 12(c) after rear of train has passed green signal."

FORM Y TRAIN ORDER is revised to read:

"(1) DO NOT EXCEED RESTRICTED SPEED BETWEEN MP 18 AND MP 20 BETWEEN BESSMER AND CORONA FROM 801 AM UNTIL 501 PM JULY 4TH AND BE PREPARED TO STOP SHORT OF UNATTENDED RED CONDITIONAL STOP SIGN DISPLAYED IN VICINITY OF MP 17.8 FOR EASTWARD TRAINS AND MP 20.2 FOR WESTWARD TRAINS UNLESS ORALLY AUTHORIZED TO PROCEED BEYOND THE STOP SIGN BY FOREMAN IN CHARGE OF WORK OR A PROCEED SIGNAL WITH GREEN FLAG IS RECEIVED
RESTRICTED SPEED MUST NOT BE EXCEEDED UNLESS FOREMAN ORALLY AUTHORIZES A DIFFERENT SPEED
YELLOW PROCEED PREPARED TO STOP SIGNS ARE DISPLAYED ONE AND ONE-HALF MILES IN ADVANCE OF RED CONDITIONAL STOP SIGNS

"When Form Y train order is required, foreman in charge of work must notify chief train dispatcher in writing furnishing location, time and date such protection is desired. After train order has been issued to all trains, chief train dispatcher will advise foreman the time that train order is in effect.

"This order will remain in effect for the time and date specified therein unless cancellation is received by chief train dispatcher from foreman. However, when yellow 'PROCEED PREPARED TO STOP' or red 'CONDITIONAL STOP' signs are displayed and Form Y train order is not in effect or has not been received, such signs must be respected in accordance with Rule 10-I the same as if the train order was in effect or had been received.

"At locations specified in this form of train order, MofW-& S employes are not required to provide flag protection for roadway equipment or track and Rules 10-G and 10-H will not apply."

RULE 10-J. Speed signs prescribing an increase in speed will not be installed on branches. Speed Restrictions tables will indicate permissible speeds between mile post locations named.

⊙**RULE 15** is revised to read:

"The explosion of two torpedoes is a signal to proceed with caution for one and one-half miles. The explosion of one torpedo will indicate the same as two, but the use of two is required.

"When torpedoes are exploded in the vicinity of a yellow signal displayed in accordance with Rule 10-H, train must proceed expecting to find an unattended red signal that may be displayed one and one-half miles beyond the torpedoes and the yellow signal.

"Torpedoes must not be placed near station buildings or public crossings, nor on other than main track.

"Torpedoes are explosive and must not be affixed to end gates or railings, nor left lying on platforms of cars or elsewhere, where children or unauthorized persons may pick them up."

⊙**RULE 103-A.** Before kicking or dropping cars over a public crossing not protected by a watchman, a member of the crew must take position at the crossing to afford protection to traffic while movement is being made.

RULE 283. Movements governed by semaphore type diverging route signals displaying "Proceed on Diverging Routes", Figs. A and B, must be made with caution.

RULES 281 and 285. Movements against the current of traffic governed by semaphore type dwarf signals displaying "Proceed", Fig. E, Rule 281; or by light type dwarf signals displaying "Proceed not Exceeding Medium Speed", Fig. G, Rule 285, must be made with caution and position of switches observed.

RULE 505. AUTOMATIC BLOCK SIGNAL SYSTEM

PUSH BUTTONS

Where signal protection is provided for movements from an adjacent track to main track, push buttons and pilot lights are installed in box near each of the two signals, with time-release feature, to clear signals on one track when the control circuit on the other track is occupied.

Train on main track to let train on siding pass may clear signal on siding by pressing button bearing number of signal on siding. Train on siding to let train on main track pass should not pass Approach Circuit sign, but when necessary to do so, may clear signal on main track by pressing button bearing number of signal on main track. Further instructions posted inside push button box.

ELECTRIC SWITCH LOCKS

Where electric switch locks are installed, lock box door must not be opened if movement is to be made into a track leading from main track until engine or car is standing within 150 feet of the switch; or if movement is to be made from such track, or through a crossover to a main track, until block indicator indicates block clear on opposite track. Within CTC limits, train dispatcher must also be notified by telephone when movement completed.

After lock box door is opened lock lever cannot be moved to opposite position to release switch for hand throwing until indicator in lock box indicates "unlocked."

Lock lever must not be returned to locked position until all movements over the switch are completed, switch returned to normal position and locked. Within CTC limits, train dispatcher's permission must also be obtained before lock box door is opened.

When block indicators indicate "block occupied," instructions posted inside lock box for operation of push button to start time-release must be complied with if movement is to be made to main track while approach circuit is occupied by another train, in addition to providing flag protection when necessary.

Low type electric locks, such as are applied direct to lever of hub type switch stands, function as above except that the removal of the switch lock has the same effect as opening the lock box door. Instead of being equipped with an "unlocked" indicator, these locks have a pilot light that indicates by illumination when the lock is unlocked.

When pilot light will not illuminate to indicate electric lock is unlocked, push button on adjacent cast iron box, protected with a cover and locked with switch lock, should be depressed to illuminate green light. After a time interval of from one to seven minutes pilot light on electric lock will be illuminated, indicating lock is unlocked.

Emergency lock release to be used only in case of electrical or mechanical failure, as indicated by failure of time-release to function after several minutes. When necessary to break seal on emergency lock release, train dispatcher must be notified immediately, and movement made only after flag protection provided on both tracks.

CENTRALIZED TRAFFIC CONTROL

⊙RULE 776. Trains authorized by train dispatcher to pass absolute signal displaying stop indication and to proceed at restricted speed under provisions of this rule, may resume normal speed after rear of train passes next block signal displaying green aspect.

GENERAL REGULATIONS

RULE 836. When necessary to shove cars ahead of engine between stations on descending grade, cars must be chained to the engine unless air brakes are operative on all cars and air cut in.

⊙RULE 873. Sanders must not be operated between absolute or interlocking signals governing movement over dual control or power operated switches.

AIR BRAKE RULES

RULE 3. Standard brake pipe pressure for BSM and MX is 90 pounds.

⊙RULE 14. When dynamic brakes are used on both road and helper engines while moving on descending grades, additional tonnage in the same ratio per unit as specified for road engine may be handled without retaining valves.

Trains handled by DF-120 to 126 class engines must not use more than three units of dynamic brakes. Dynamic brake cable must be removed between third and fourth units in direction of movement, and unit selector switch on lead unit placed in No. 3 position.

Trains handled by DF-605, 607, 608, 609, 611 class engines must not use more than four units of dynamic brakes. Dynamic brake cable must be removed between fourth and fifth units in direction of movement, and unit selector switch on lead unit placed in No. 4 position.

Trains handled by DF-1 to 12 or DF-603, 606 class engines must not use more than five units of dynamic brakes. Dynamic brake cable must be removed between fifth and sixth units in direction of movement, and unit selector switch on lead unit placed in No. 4 position.

⊙RULE 23. Gondola cars SP 345000 to 345599 are equipped with air brake system which has automatic changeover feature to provide proper brake function when car is loaded and when empty. Before leaving station or point where such cars have been added to the consist or where crews are changed the outgoing engineer must actuate the automatic changeover feature by reducing brake pipe pressure to below 30 pounds whether cars are loaded or empty.

⊙RULE 33. When tonnage of freight train handling cars with single capacity brakes exceeds 80 tons per operative brake, maximum speed of train must not exceed 45 MPH.

MISCELLANEOUS

5. Helper service:

(a) Helper engines must not be placed behind wooden underframe equipment.

(b) Helper engines consisting of not more than two units may be placed behind caboose.

(c) Helper engines consisting of not more than four units may be placed immediately ahead of caboose.

Air will be cut in on all helper engines, and engine must not be cut off when train is in motion.

⊙6. Unless otherwise authorized, trains handling passenger cars with flat spots on wheels in excess of 3¼ inches in length must not exceed 10 MPH. When flat spots are not in excess of 3¼ inches long such cars may be operated at maximum authorized speeds.

27. Should a passenger train be stopped in a tunnel, air conditioned cars within the tunnel must immediately have the air conditioning systems, including ice engines and engine generators, shut off, fresh air intake shutters closed, and blower fans shut off.

Should a train be stopped with the engine in a tunnel and it is found that, in the case of a passenger train it cannot be moved within five minutes after stopping, and in the case of a freight train it cannot be moved within a reasonable length of time, trainmen and enginemen must take necessary precautions to prevent movement. Independent brake and sufficient hand brakes must be immediately applied. Engine wheels must be secured by blocks or chains, and power plants and steam generators, if any, on engine shut down.

28. DF and DP class engines operated with engineer in other than the lead unit in direction of movement, must not exceed 20 MPH when approaching highway or street crossing at grade, subject to further restrictions imposed by local conditions.

SPECIAL INSTRUCTIONS—ALL SUBDIVISIONS

⊙**SPEED RESTRICTIONS FOR ENGINES:** Maximum speed shown below is subject to further restriction applicable to certain territories as shown in Speed Restrictions for Trains:

NOMINAL CLASS	RUNNING FORWARD WITH TRAIN	RUNNING FORWARD LIGHT	RUNNING BACKWARD WITH TRAIN OR LIGHT
DF-1 to 12, except:	65	65	*30
6187 to 6189, 6191 to 6195, 6197 to 6200, 6205 to 6212, 6214 to 6227, 6229 to 6239, 6378 to 6382, 6384, 6385, 6387 to 6392, 6394 to 6403, 6440, 6442 to 6445, 6447, 6455, 6458 to 6461, 8086, 8087, 8090, 8096, 8099, 8101, 8104, 8110, 8112, 8115 to 8117, 8119 to 8121, 8123 to 8125, 8130 to 8133, 8138, 8290 to 8297, 8299, 8300, 8302, 8303	70	70	*30
6190, 6202, 6203, 6383, 6386, 6393, 6441, 6446, 6448 to 6457, 8091 to 8093, 8095, 8102, 8103, 8106 to 8109, 8111, 8114, 8118, 8122, 8126 to 8129, 8134 to 8137, 8139, 8298, 8301	79	79	*30
DF-100, 114 (5288, 5289) 115, 119, 123, 126	65	65	**65
DF-114 (5279 to 5287, 5290 to 5293), 117	55	55	**55
DF-116, 118, 120, 121, 122, 124, 125	70	70	**70
DF-101 to 112	60	60	**60
DF-200 to 206	55	55	**55
DF-300 to 306	65	65	**65
DF-307	60	60	**60
DF-500, 501	70	70	**70
DF-603, 606	70	70	**70
DF-605, 607, 610 to 613	65	65	**65
DF-608, 609	75	75	**75
DP	79	79	*30
DS-1, 4, 5	45	45	45
DS-2, 3, 6 to 12	60	60	60
DS-100 to 108, 110, 111, 113 to 115, 117 to 122	60	60	**60
DS-109	65	65	65
DS-200, 201	35	35	35
Any engine not listed	35	35	25

*When on head end of train or running light and engineer is in other than lead control cab in direction of movement.

**When operated in multiple unit control with engineer in other than lead unit in direction of movement must not exceed 30 MPH.

Maximum speed of steam engines under following conditions, running under own steam, or hauled in train:

When all weight has been removed from any one pair of drivers	20 MPH
When all weight has been removed from only one wheel of any pair of drivers	30 MPH
When engine truck is removed	20 MPH
When main rod only is removed	30 MPH
When side rod only is removed	30 MPH
When both main and side rods are removed	20 MPH

Maximum speed of trains handling dead engines of S or SE class 20 MPH; other SPCo steam engines 40 MPH; and diesel engines the speed shown for same engine running forward light, except DS-200, 201 class must have traction motor brushes removed and speed restricted to 30 MPH.

Dead diesel engines hauled in train and weighing 150,000 pounds or more must be placed first behind engine handling the train. If weight is less than 150,000 pounds dead diesel engines must be placed near rear of train.

Dead steam engines hauled in train and weighing 150,000 pounds or more on drivers must, as far as practicable, be cut in between 25 and 30 cars from the head end of the train but in no event less than 8 cars from engine handling the train. If weight is less than 150,000 pounds on drivers dead steam engines must be placed near rear of train.

Unless otherwise restricted, not more than two dead steam engines shall be moved in any one train and when so moved they must be separated by five cars. When an S or SE class and a road engine are moved dead in train, a steel underframe freight car must be placed between them and S or SE class engine entrained with tender ahead.

Dead or disabled engines, and equipment listed in timetable which requires movement at reduced speed must first be reported as ready to move to the chief train dispatcher, who will designate the train in which the engine or equipment is to be moved. Any such engine must not be handled in train until train order designating maximum speed is issued.

Movement of foreign line engines, in service or dead in train, must not be authorized until provisions of current Line Clearance Circular have been complied with.

⊙MAXIMUM SPEED PERMITTED WITH CERTAIN EQUIPMENT	MPH MAIN TRACKS OTHER THAN BRANCHES	MPH MAIN TRACKS ON BRANCHES
Double or triple loads	..	25
Scale test cars	40	30
Cars with arch bar trucks	40	30
Steel pile-drivers, except:	40*	30*
SPMW-4088 (locomotive crane pile-driver):		
with boom detached and trailing	35*	25*
with boom attached and trailing	25*	15
Relief outfits with steam derrick, except:	40*	25*
Nos. 7007, 7009, 7012, 7019, 7033 and 7034 (Relief outfits 7032 and 7033 must not be operated on any branch)	35*	25*
Power shovel on own wheels	35*	25*
Ditchers on own wheels, except:	35*	25*
SPMW-4044	25*	25*
Car-top ditchers, if blocking and tie-down cable are removed	35*	25*
K&J pedestal or center-hinged air-dump cars, loaded or empty (except SPMW-5100 to 5289)	35*	25*
Locomotive cranes:		
with boom disconnected, heavy end forward	35*	25*
with boom disconnected, light end forward	20*	15
with boom in place, either end forward	25*	15
Rotary snow plows:		
Electrified	35	15
Steam	25	15

*These speeds must not be exceeded, and on curves where authorized speed is more than 15 MPH speed must be reduced to 5 MPH less than shown in timetable and on speed signs.

⊙OTHER MAXIMUM SPEEDS	MPH PASSENGER TRAINS	MPH FREIGHT AND MIXED TRAINS
Trains containing cars CG-50 to 63; MKT-45051 to 45070; NcStL-18097 to 18120 and 18263, 18349, 18481, 18498; RFP-280 to 288	60	60
Trains of deadhead equipment with caboose	60	..
Passenger trains with caboose	60	..
Engine and caboose only, except: must not exceed speed for same engine running forward light.	..	60
Engine, flanger and caboose only, except:	..	40
On curves	..	30
Logs loaded on flat or logging cars, except:	..	35
On curves	..	25
Through truss bridges, tunnels, and passing stations	...	15

SPMW cars equipped with K type brakes must not be handled in trains consisting of more than 50 cars and train must not exceed 40 MPH while handling such equipment.

All cars handled in passenger trains must be equipped with steel-tired or all-steel wheels. Cars not so equipped must move in freight trains, passengers, if any, to move on passenger trains.

Passenger carrying cars, baggage, express and other head-end cars, unless equipped with steel center sills and steel platforms must not be handled in passenger trains except on authority of Superintendent.

Freight cars must not be handled behind occupied passenger carrying cars, except in military or naval mixed trains.

Baggage, express, mail, refrigerator or other head-end cars must not be handled on rear of passenger trains.

When moving against current of traffic, or when movement is not protected by block signals, speed of passenger trains and light engines must not exceed 59 MPH, and speed of freight trains must not exceed 49 MPH, nor may speed exceed that applying to normal operation. Unless proceed signal received, or it is known that warning devices are operating, such trains and engines must stop approaching road crossings where automatic warning devices are installed, and may proceed after member of crew protects crossing.

⊙**RULE 10-J.** Speed signs to left of track:

Eastward	Reading
MP 733.01	50-25
MP 736.76	35
MP 904.74 (Phoenix)	15

Westward	Reading
MP 792.50 (Mohawk)	70-60

RULE 21-C. At Phoenix, Gila and Yuma, incoming trains may display indicators until arrival of engine on service track.

⊙**RULE 93.** Yard limits within which the provisions of Rule 93 will apply except within CTC limits are established at the following points:

West MP		East MP
731.51	Yuma	737.83
	" (Yuma Valley RR)	0.22
768.88	Wellton	771.00
	" (Gila Line)	771.00
874.22	Buckeye	877.02
888.80	Litchfield Jct.	890.60
	(Litchfield Branch)	End of track
894.23	Tolleson	896.89
900.96	Phoenix	908.79
844.00	Theba	849.00
854.20	Gila	857.70

Yuma: Eastward freight trains must not pass Signals 7340 and 7342 unless proceed signal received, white flag by day, green light by night.

East Yard: Westward trains entering yard tracks must not pass Signal P-7375 unless proceed signal received, white flag by day, green light by night.

Phoenix: Tracks at east and west end of Union Station are used jointly by AT&SFRy and SP trains. Yard and light engines must avoid delaying first-class trains on all tracks within Union Station zone. Trains will approach switch at entrance to Union Station tracks prepared to stop and may proceed only when track is known to be clear.

Eastward main track between end of double track Phoenix Yard, MP 907.4 and Phoenix Union Depot, MP 906.1, may be used by trains and engines as a yard track, and movements made under rules applicable to movement on yard tracks.

Phoenix Yard: Freight trains arriving or departing must receive proceed signal, white flag by day, green light by night, before passing 7th St., or 16th St.

Proceed signal, white flag by day, green light by night, will be an indication to westward trains crossing over Eastward Track to Westward Track that protection for such movement has been provided on both main tracks and yardman is responsible that such protection has been provided.

⊙**RULE 103-A.** A flagman must precede all movements over:

Yuma........1st, 2nd, 3rd and 4th Sts., on yard tracks,
Pipeola......Crossings within Southern Pacific Pipe Line reservation.

RULE 103-B. Back-up hose must be used on leading car when shoving cars on Government tracks at airport at Yuma.

RULE 104. Normal position of rigid switches at the end of double track and at junctions, is as follows:

Yuma.............Yard track on Madison Ave., for YVRR main track,
Litchfield Jct...Litchfield Br., for Phoenix line,
Phoenix.........Switch in Eastward Track, immediately west of First Avenue, from main track to Eastward Track,
Phoenix.........West end double track, for westward track.

Normal position of west crossover switch from yard track No. 1 to Eastward Track at East Yard, is for tail track.

RULE 211. Will apply when letter "M" is illuminated in letter-type indicator as follows:

On Signal	Approaching
7941	Mohawk

RULE 221. Unit for display of flashing light installed at the following location:

Station	Location	Direction
Sentinel	On train-order signal mast	Eastward

Display of flashing white light indicates that train-order signal is displaying proceed indication or that train-order operator has train orders ready for delivery, that such train orders do not restrict train at that station, and that train, providing it is not restricted by timetable or by train orders previously received, may pass fouling point of switch at which an opposing train may enter siding or place where time applies if there is no siding.

⊙**RULE 306.** The following block signals equipped with triangular plate bearing the letter "P" have included in their control limits some special protective device. Absolute signals are listed as "P-A".

Eastward Signals	Protection	Westward Signals
P-A, P-A	Spring switch, east end Colorado River bridge	
	Spring switch, end double track, East Yard	P-7375
P-7428	Spring switch, west end siding, Fortuna	
	Spring switch, east end siding, Fortuna	P-7441
P-7500	Spring switch, west end siding, Kinter	
	Spring switch, east end siding, Kinter	P-7513
P-7532	Spring switch, end double track, Dome	
P-7606	Collision Detector, Ligurta underpass, MP 760.61	P-7607
P-7756	Spring switch, west end siding, Noah	
P-7836	Spring switch, west end siding, Colfred	
	Spring switch, east end siding, Colfred	P-7849
P-7920	Spring switch, west end siding, Mohawk	
	Spring switch, east end siding, Mohawk	P-7931
P-8002	Spring switch, west end siding, Stoval	
P-8116	Spring switch, west end siding, Aztec	
P-8190	Spring switch, west end siding, Stanwix	
P-8252	Spring switch, west end siding, Sentinel	
P-8398	Spring switch, west end siding, Piedra	
P-8494	Spring switch, west end siding, Smurr	
P-9052	Spring switch, west end passenger lead, Phoenix	
	Spring switch, east end double track, Phoenix Yard	P-9075

⊙RULE 505. AUTOMATIC BLOCK SIGNAL SYSTEM

Yuma: Signal 7342 on drill track governs eastward movements through crossover to main track only and will remain dark until crossover switch is opened.

Phoenix: Crossing—AT&SFRy Wye: If signal indicates "Stop" trains and engines must stop, and if wye is clear of intersecting movement, may then proceed as prescribed by Rules 509 or 510, but must provide flag protection on intersecting track unless derail is known to be in derailing position.

Top unit of Signal P-9052 governs Eastward movements through spring switch to Union Station tracks. Bottom unit governs Eastward movements on main track. Trains and engines to move on main track east of passenger lead, must stop before reaching Signal P-9052 until spring switch has been lined for main track, and signal displays proceed indication.

Block signals are provided for movements in either direction on Eastward track between First Ave., MP 906.3, and end of double track, MP 906.2.

Westward track between "Block System Limit" sign at First Ave. and end of double track, MP 906.2, is outside block system limits.

Signal 9060 governs eastward movements on main track to beginning of double track, MP 906.2, and on Eastward track to Signal 9064.

Signal 9063 governs westward movements on Eastward track to end of double track, MP 906.2, and on main track to Signal 9061.

RULE 516. Overlap posts:

Tolleson	450 feet east of Signal 8958	Eastward trains
Tolleson	750 feet east of MP 895.00	Westward trains
23rd Ave. Phoenix	Middle of siding	Eastward trains
23rd Ave. Phoenix	Middle of siding	Westward trains

⊙RULE 535. SPRING SWITCHES

Spring switches equipped with facing point locks are located as follows:

Location		Normal Position
Yuma	East end bridge	Eastward Track
East Yard	End double track	Westward Track
Fortuna	West end siding	Main track
Fortuna	East end siding	Main track
Kinter	West end siding	Main track
Kinter	East end siding	Main track
Dome	End double track	Eastward Track
Noah	West end siding	Main track
Colfred	West end siding	Main track
Colfred	East end siding	Main track
Mohawk	West end siding	Main track
Mohawk	East end siding	Main track
Stoval	West end siding	Main track
Aztec	West end siding	Main track
Stanwix	West end siding	Main track
Sentinel	West end siding	Main track
Piedra	West end siding	Main track
Smurr	West end siding	Main track

Spring switches not equipped with facing point locks are located as follows:

Location		Normal Position
Phoenix	Main track at passenger lead	Passenger lead
Phoenix Yard	East end double track	Westward track

Yuma: Spring switch on engine lead equipped with switch-point indicator. Indicator does not indicate track occupancy. Indicator will display green aspect with switch in either normal or reverse position. When indicator displays red aspect or indicator light is extinguished, careful examination of switch must be made before making a facing point movement.

RULE 605. INTERLOCKING

Wellton: Limits extend from westward interlocking signals 4,300 feet east of station building on Gila line and 4,600 feet east of station building on Phoenix line, to eastward interlocking signals 1,000 feet west of station building on westward track and 1,600 feet west of station building on eastward track.

East switch of siding equipped with an electric switch lock and must not be used unless permission is obtained from signal operator.

Switches to spurs on Westward Track in the vicinity of station building equipped with mechanical switch locks but must not be used until permission is obtained from signal operator.

Dual control switches within interlocking limits are under control of signal operator. When necessary to hand-throw these switches, permission must be obtained from signal operator and be governed by Rules 771 and 772.

GENERAL REGULATIONS

RULE 825. Instructions for setting hand brakes:

Yuma:	Freight trains	Four brakes on east end, Two brakes on west end;
East Yard:	Freight trains	Two brakes on east end, Five brakes on west end;
Phoenix Yard:	Freight trains	Two brakes on west end, Two brakes on east end.

⊙RULE 826. Yuma and Phoenix Yard: Indicator lights located above tracks at each end PFE icing platform govern movements on those tracks as follows:

Green:	Tracks may be used for train or switching movements.
Yellow:	Tracks may be entered and engines, cars or cabooses added or detached, but cars must not be dropped or kicked against cars on those tracks.
Red:	Tracks may be entered but cars on tracks must not be coupled to or moved. Trains made up on these tracks must not depart until it has been ascertained indicator displays green aspect.
Not Lighted:	Must be considered as displaying most restrictive indication and icing platform foreman must be contacted for instructions before cars are coupled to or moved.

AIR BRAKE RULES

FREIGHT TRAINS

RULE 22. Trainmen must not couple air hose on outgoing freight trains at Gila until train is made up and engine and caboose on train, unless train is made up by crew making air test and handling the train from Gila.

⊙RULE 24-B. Gila: When engine crew, train crew, or both, are changed on freight trains, but train consist including engine and caboose remains intact, after stopping incoming engineer will make full service brake application and leave brakes applied.

Outgoing trainman, after noting brakes applied on rear car will signal outgoing engineer to release brakes, noting that brakes release on rear car and brake pipe pressure in caboose is being properly restored.

MISCELLANEOUS

6. Litchfield, gate at entrance Goodyear Aircraft spur is locked with Government lock, and to gain entrance a long and short sound of whistle will be notification to watchman on duty to take care of the opening and closing of the gate.

⊙11. Load limit (car and contents):

Yuma-Phoenix Yard	251,000 pounds
Wellton-Gila	251,000 pounds
Litchfield Jct.-Litchfield Park	230,000 pounds

Unless authorized by Superintendent, heavier loads must not be handled.

13. LOCATION OF STOCK YARDS

Station	Capacity in cars	
East Yard	117	(Water)
Wellton	2	(Water)
Roll	2	
Horn	Chute	
Hyder	Chute	
Arlington	10	(Water)
Buckeye	6	(Water)
Litchfield	10	(Water)
Tolleson	9	
Campo	35	
Phoenix	81	(Water)
Sentinel	3	(Water)
Theba	11	(Water)
Gila	5	(Water)
Litchfield Park	7	

⊙29. Operation of Yuma Valley Railroad is under the jurisdiction of the Los Angeles Division except train dispatching is handled by the Tucson Division.

Movements on YVRR are governed by SPCo Rules and Regulations of the Transportation Department, Air Brake Rules and Regulations, timetable, Special Instructions and timetable bulletins.

Trains must not exceed 10 MPH between MP 0.00 and 0.53, 25 MPH between MP 0.53 and MP 14.70, and 10 MPH between MP 14.70 and MP 16.08, except must not exceed 8 MPH over trestle at U. S. R. S.

Impaired clearance at Spillway, MP 10.25.

Normal position of junction switch at Yuma is for YVRR main track.

Track out of service and must not be used east of MP 16.08 (Somerton).

Load-limit (car and contents):

Yuma-Somerton .... 210,000 pounds

Unless authorized by Superintendent heavier loads must not be handled.

RATING OF ENGINES—In Units of 2000 Lbs. (Tons)

Nominal Class	Engine Numbers	Yuma to Somerton	Somerton to Yuma
DF-200 to 206	5100 to 5120	3000	2325

UNLESS AUTHORIZED BY SUPERINTENDENT, ENGINES WILL NOT BE PERMITTED TO OPERATE IN THESE TERRITORIES WHERE NO RATING IS SHOWN IN ENGINE RATING TABLE.

30.

LOCATION OF OVERHEAD AND SIDE STRUCTURES NOT STANDARD CLEARANCE ON MAIN TRACK AND SIDINGS

Mile Post	Location	Description
778.00	Gila River bridge	Side
891.00	Agua Fria River bridge	Side
YVRy MP 10.00	Canal Spillway gates	Side

SPEED RESTRICTIONS FOR OTHER THAN MAIN TRACKS	With Caution Not Exceeding MPH
Through sidings, yard and other tracks, wyes, balloon tracks, crossovers and turnouts, except:	15
Through turnouts on other than sidings	10
On branches	10
★Over, upon, or across any street crossing, Yuma	5
On Government tracks at Yuma airport	10

★Regulated by City ordinance.

SPECIAL INSTRUCTIONS—WELLTON SUBDIVISION

⊙SPEED RESTRICTIONS FOR TRAINS: Maximum speed of trains in territory shown below is subject to further restrictions applicable to engines in the train as shown in SPEED RESTRICTIONS FOR ENGINES, and MAXIMUM SPEED PERMITTED WITH CERTAIN EQUIPMENT and OTHER MAXIMUM SPEEDS appearing on page 4 of Special Instructions for All Subdivisions. Speed must be further reduced as prescribed by speed signs, except as specifically authorized by Special Instructions herein, or by timetable bulletin.

All trains must run carefully during and after heavy storms, particularly when the track is apt to be affected. When fog, storms or other conditions obscure track or signals, speed of trains must be so reduced as to permit strict observance of signals and INSURE SAFETY, REGARDLESS OF TIME.

TERRITORY (MP to MP)	PASSENGER TRAINS (Column 1)	FREIGHT AND MIXED (Column 2)	LIGHT ENGINES (Column 3)
EASTWARD, YUMA TO PHOENIX YARD:			
732.29 to 733.01	15	15	15
733.01 to 737.49	60	55	60
737.49 to 737.51 (spring switch)	35	35	35
737.51 to 745.61	79	60	70
745.61 to 748.58	75	60	70
748.58 to 755.12	45	40	45
755.12 to 759.00	55	50	55
759.00 to 762.88	60	55	60
762.88 to 768.57	79	60	70
768.57 to 769.68	65	60	65
769.68 to 770.66	50	50	50
770.66 to 770.72 (thru east crossovers)	25	20	25
770.72 to 771.01	50	50	50
771.01 to 776.36	79	55	70
776.36 to 778.22	55	40	55
778.22 to 845.93	79	55	70
845.93 to 847.90	60	50	60
847.90 to 875.35	79	55	70
★875.35 to 876.07 (Buckeye)	40	40	40
876.07 to 887.40	79	55	70
887.40 to 887.65	60	50	60
887.65 to 890.52	79	50	70
890.52 to 891.19	60	50	60
891.19 to 893.50	79	50	70
893.50 to 894.50	60	50	60
894.50 to 901.19	70	55	70
901.19 to 904.10	40	40	40
904.10 to 904.77	40	25	40
904.77 to 905.49	20	20	20
905.49 to 905.51 (spring switch)	15	15	15
905.51 to 907.43	20	20	20
EASTWARD, WELLTON TO GILA:			
769.68 to 770.83	50	50	50
770.83 to 792.50	70	60	70
792.50 to 794.03	30	30	30
794.03 to 795.00	60	55	60
795.00 to 823.00	70	60	70
823.00 to 825.18	50	45	50
825.18 to 855.75	70	60	70
855.75 to 855.77	30	30	30
855.77 to 866.98	70	50	70
EASTWARD, LITCHFIELD JCT. TO LITCHFIELD PARK	20	20	20

TERRITORY (MP to MP)	PASSENGER TRAINS (Column 1)	FREIGHT AND MIXED (Column 2)	LIGHT ENGINES (Column 3)
WESTWARD, PHOENIX YARD TO YUMA:			
907.43 to 905.51	20	20	20
905.51 to 905.49 (spring switch)	15	15	15
905.49 to 904.77	20	20	20
904.77 to 904.10	40	25	40
904.10 to 901.19	40	40	40
901.19 to 894.50	70	55	70
894.50 to 893.50	60	50	60
893.50 to 891.19	79	50	70
891.19 to 890.52	60	50	60
890.52 to 887.65	79	50	70
887.65 to 887.40	60	50	60
887.40 to 876.07	79	55	70
★876.07 to 875.35 (Buckeye)	40	40	40
875.35 to 847.90	79	55	70
847.90 to 845.93	60	50	60
845.93 to 778.22	79	55	70
778.22 to 776.36	55	40	55
776.36 to 771.01	79	55	70
771.01 to 769.68	50	50	50
769.68 to 768.57	65	60	65
768.57 to 762.88	79	60	70
762.88 to 759.00	60	55	60
759.00 to 755.12	55	50	55
755.12 to 753.27	45	40	45
753.27 to 753.25 (spring switch)	35	35	35
753.25 to 748.58	45	40	45
748.58 to 745.61	75	60	70
745.61 to 737.51	79	60	70
737.51 to 733.01	60	55	60
733.01 to 732.29 (Until engine passes spring switches)	15	15	15
WESTWARD, GILA TO WELLTON:			
866.98 to 855.77	70	50	70
855.77 to 855.75	30	30	30
855.75 to 825.18	70	60	70
825.18 to 823.00	50	45	50
823.00 to 795.00	70	60	70
795.00 to 794.03	60	55	60
794.03 to 792.50	30	30	30
792.50 to 770.83	70	60	70
770.83 to 770.78	50	50	50
770.78 to 770.72 (Crossover)	25	20	25
WESTWARD, LITCHFIELD PARK TO LITCHFIELD JCT.	20	20	20

★Regulated by City ordinance.

BSM and MX, with maximum of 60 cars or 2,500 tons and containing no restricted cars, are authorized to operate at speeds shown in Column 1, except must not exceed 60 MPH.

RATING OF ENGINES—In Units of 2000 Lbs. (Tons)

NOMINAL CLASS	ENGINE NUMBERS	Yuma to East Yard MP 789 to Mohawk MP 822 to Sentinel	East Yard to MP 789 Mohawk to MP 822 Sentinel to Gila Wellton to Saddle 2 M W Gillespie to Phoenix Yard	Saddle to 2 M W Gillespie	Gila to MP 796 Mohawk to Blaisdell Fortuna to Yuma Phoenix Yard to MP 858 2 M W Gillespie to Wellton	Blaisdell to Fortuna MP 858 to 2 M W Gillespie	MP 796 to Mohawk	Litchfield and Litchfield Park
DP-4, 7, 12	6000 to 6004, 6017, 6018, 6046 to 6054, 5900 to 5909, 5916, 5917	1875	2150	1375	3075	2150	1525	....
DP-5, 6, 8 to 11	6005 to 6016, 6055 to 6058, 5910 to 5915; 6019 to 6033, 5918 to 5924; 6034 to 6045	3125	2975	1925	3075	2975	2575	....
DF-1 to 12	6138 to 6461, 8022 to 8303, except	2125	2425	1600	3400	2425	1750	3175
	with 61:16 gear ratio	1825	2100	1375	2950	2100	1525	....
	with 60:17 gear ratio	1675	2150	1250	2700	2150	1375	3375
DF-100	5200 to 5202	2850	3325	2150	4800	3325	2350	5225
DF-101 to 108, 110, 112	4900 to 4902, 5203 to 5249, 5253 to 5278	....	....	....	5000	4875	3425	6475
DF-109, 111	4903 to 4905, 5250 to 5252	....	....	....	....	....	....	
DF-114, 116 to 118, 120 to 122, 124, 125	5279 to 5293, 5308 to 5335, 5340 to 5444, 5449 to 5493	3525	4000	2600	5900	4000	2900	5400
DF-115, 119, 123, 126	5294 to 5307, 5336 to 5339, 5445 to 5448, 5494 to 5507	2925	3375	2200	4775	3375	2400	6125
DF-200 to 206	5100 to 5120							1700
DF-300 to 304	4600 to 4623, 4700 to 4703	1750	2025	1325	2925	2025	1450	2700
DF-305, 306	4624 to 4633	1975	2275	1500	3225	2275	1650	3000
DF-307	4634 to 4645	....	....	....	....	....	....	5950
DF-500, 501	4800 to 4815							4075
DF-603, 605 to 607, 611, 612	5600 to 5719, 5730 to 5799, 5800 to 5844	2475	3175	1850	4375	3175	2025	3675
DF-608 to 610, 613	5720 to 5729, 5845 to 5859							....
DS-1 to 8	1000 to 1032	900	1025	650	1475	1025	725	1675
DS-9 to 12	1033 to 1090	1600	1825	1200	2600	1825	1300	2400
DS-100 to 109, 111, 115, 119	1300 to 1441, 1464 to 1485, 1514 to 1528, 1551 to 1567	1350	1575	1025	2225	1575	1125	2600
DS-110, 114, 118	1442 to 1463, 1492 to 1513, 1539 to 1550	1875	2000	1300	2900	2000	1525	2650
DS-113, 117, 120 to 122	1486 to 1491, 1529 to 1538, 1568 to 1596	1650	1925	1300	2700	1925	1375	2500
DS-200, 201	1900 to 1903	....	....	....	....	....	....	975

UNLESS AUTHORIZED BY SUPERINTENDENT, ENGINES WILL NOT BE PERMITTED TO OPERATE IN THOSE TERRITORIES WHERE NO RATING IS SHOWN IN ENGINE RATING TABLE.

⊙**RULE 10-J.** Speed signs to left of track:

Eastward	Reading	Westward	Reading
MP 974.82	75-60	MP 856.52	30-30
		MP 870.87	30
		MP 875.23	55-50

RULE 21-C. At Phoenix, Gila and Tucson, incoming trains may display indicators until arrival of engine on service track.

⊙**RULE 93.** Yard limits within which the provisions of Rule 93 will apply are established at the following points:

West MP		East MP
900.96	Phoenix	908.79
914.23	Tempe	915.39
	" (Tempe Branch)	End of track
920.45	Mesa	922.88
928.09	Chandler	931.09
977.97	Picacho	938.16
935.36	" (Gila line)	
977.96	Tucson (No. 2 Track)	993.00
	" (No. 1 Track)	992.09
	" (Nogales Br.)	987.42
854.20	Gila	857.70
917.32	Casa Grande	920.05
925.66	Gilbert	928.48
986.84	Ray Jct.	988.72
998.80	Hayden	1004.90
1046.37	Nogales	1049.89

Phoenix Yard: Freight trains arriving or departing must receive proceed signal, white flag by day, green light by night, before passing 7th St., or 16 St.

Proceed signal, white flag by day, green light by night, will be an indication to westward trains crossing over Eastward Track to Westward Track that protection for such movement has been provided on both main tracks and yardman is responsible that such protection has been provided.

Phoenix-Phoenix Yard: Unless otherwise instructed, Westward main track between Phoenix, MP 906.1, and end of double track Phoenix Yard, MP 907.4, will be used by passenger trains in either direction as single track.

Eastward main track between end of double track Phoenix Yard, MP 907.4, and Phoenix, MP 906.1, may be used by trains and engines as a yard track, and movements made under rules applicable to movement on yard tracks.

Tucson: Unless otherwise instructed, Eastward freight trains will be terminated at P.F.E. Yard, and if using yard tracks Nos. 2 or 4 will stop with cab of engine opposite "STOP" sign near East end.

Between Park Ave. and Cherry Ave. track south of Eastward main track is Nogales lead, and will be used by trains and engines for movements between P.F.E. Yard and Nogales Branch main track.

RULE 99-C. Will apply as follows:
On Christmas Branch.

⊙**RULE 103-A.** A flagman must precede all movements over:

Tovrea, Washington St.,
Tempe, Spur crossing Mill Ave. and 8th St.,
Mesa, Spur crossing East Main St.,
Tucson, West Congress St.,
" South 4th Ave.,
" South 6th Ave.,
" Simpson St.,
Sahuarita, Nogales Highway,
Nogales, Banks Bridge crossing at MP 1048.92,
Nogales, Court and Park Sts.

A flagman must precede all switching movements over Fifth St., Tempe.

Trains and engines must not exceed 5 MPH over Baseline Road at MP 917.84 on Tempe Branch, until crossing is blocked.

RULE 103-B. Back-up hose must be used when shoving cars between North and South yards and/or PFE Yard, Tucson.

Back-up hose must be used on leading car when shoving cars on Government tracks at airport at Higley, and on Eagle-Picher spur at Sahuarita.

RULE 104. Normal position of rigid switches at the end of double track and at junctions, is as follows:

Phoenix......Switch in eastward main track, immediately west of First Avenue, Phoenix, from main track to eastward main track,
Phoenix......West end double track, for westward track,
Kendall......Second main track, for main track,
Tempe Jct....Tempe Br., for Phoenix line,
McQueen.....Christmas Br., for Phoenix line,
Magma.......Magma-Arizona RR main track, for back track,
Ray Jct.......KCCRR main track, for yard track,
Hayden.......Christmas Branch, for KCCRR line,
Hayden.......SMARR main track, for Christmas Branch.

Derails on main track:
Christmas....250 feet east of west switch,
Nogales......Point derail, facing westward movement, just west of west switch of first yard track north of main track.

RULE 286. When distant signals governing movements on controlled sidings display yellow aspect, train may proceed on siding at restricted speed expecting to find siding occupied by preceding train.

⊙**RULE 104-E. Ray Jct.:** Automatic switch stand on main track switch of westward crossover to yard track, just east of station. Trains and engines making facing point movement over this switch must stop and ascertain that points are in proper position. Trains and engines making trailing movement over this switch may leave switch in position to which forced by the trailing movement.

⊙**RULE 306.** The following block signals equipped with triangular plate displaying the letter "P", have included in their control limits some special protective device:

Eastward Signals	Protection	Westward Signals
P-9052	Spring switch, west end passenger lead, Phoenix	
	Spring switch, east end double track, Phoenix Yard	P-9075
P-8648	Spring switch, west end siding, Bosque	
	Spring switch, east end siding, Bosque	P-8661
P-8706	Spring switch, west end siding, Shawmut	
P-8740	Spring switch, west end siding, Estrella	
P-8828	Spring switch, west end siding, Mobile	
P-9072	Spring switch, west end siding, Bon	
P-A	Spring switch, west end westward siding, Stockham	
	Spring switch, east end crossover, Stone Ave., Tucson	P-9837
P-9834	Spring switch, west end crossover, Sixth Ave., Tucson	
P-9850	Spring switch, west end crossover, Cherry Ave.	
	Spring switches, east ends crossovers, Cherry Ave.	P-9853
	Spring switch, end double track, P.F.E. Yard, MP 985.48	P-SA

⊙RULE 505. AUTOMATIC BLOCK SIGNAL SYSTEM

Phoenix: Eastward trains moving on Westward main track between Phoenix and end of double track Phoenix Yard, MP 907.4, will have no block signal control except will be governed by indication of Signal 9074 located on Eastward track at end of double track.

When Signals 9075 and 9069 display stop indication, westward trains and engines after stopping may proceed under the provisions of Rules 509(a), 509(b) or 510.

Tucson: Signals 9853 and 9855 on Nogales lead at Cherry Ave. govern Westward movements through crossovers to main tracks only, and will remain dark until crossover switch is opened.

RULE 516. Overlap posts:

McQueen....... Middle of siding...... Westward trains.

⊙RULE 535. SPRING SWITCHES

Spring switches equipped with facing point locks are located as follows:

Location		Normal Position
Bosque	West end siding	Main track
Bosque	East end siding	Main track
Shawmut	West end siding	Main track
Estrella	West end siding	Main track
Mobile	West end siding	Main track
Bon	West end siding	Main track
Stockham	West end westward siding	Main track
P.F.E. Yard	End double track, MP 985.48	Westward track

Spring switches not equipped with facing point locks are located as follows:

Location		Normal Position
Phoenix	Main track at passenger lead	Passenger lead
Phoenix Yard	East end double track	Westward track
*Tucson	West end crossover, Stone Ave.	Westward track
*Tucson	East end crossover, Stone Ave.	Crossover
*Tucson	West end crossover from passenger tracks	Eastward track
*Tucson	West end crossover, Cherry Ave.	Westward track
*Tucson	East end crossover, Cherry Ave.	Crossover
*Tucson	West end crossover from Nogales lead, Cherry Ave.	Eastward track

*Equipped with switch point indicator. Spring switches are also located on engine leads at Tucson.

⊙RULE 705. LETTER TYPE INDICATORS

Indicators located as follows:

Illuminated Letter	On Signal Approaching	Authorizes and Requires Movement as Follows:
W	Stub mast MP 982.8. South Line Jct., Tucson	Stop until light in indicator extinguished.

Indicator on mast 300 feet east of 22nd St., Nogales Branch, Tucson. When letter W is illuminated westward trains must stop east of 22nd St. When flashing white light is displayed train is authorized to proceed to P.F.E. Yard.

GENERAL REGULATIONS

⊙RULE 821. Wooley: Eastward trains must approach stop sign at MP 984.66 and westward trains must approach stop sign at MP 984.80 prepared to stop until it can be ascertained that Wooley Wash track is safe for passage of trains.

During and after heavy rains and run-off when there are indications that gravel or debris may be found on Wooley Wash track, trains must stop at these stop signs and not proceed until it has been ascertained that track is safe for the passage of trains.

Maximum speed across Wooley Wash must not exceed 10 MPH.

RULE 825. Instructions for setting hand brakes:

Phoenix Yard:
Freight trains.... Two brakes on west end, Two brakes on east end;

Tucson: Passenger trains..... Two brakes on west end, Two brakes on east end;
*Freight trains..... Fifteen brakes on west end, Ten brakes on east end;

PFE Yard:
*Freight trains..... Fifteen brakes on west end, Ten brakes on east end.

*Hand brakes will not be set if engine is not detached, no switching is to be performed, and outgoing crew takes charge of train on arrival.

Tucson: Hand brakes will not be set on Golden State and Sunset unless engine is detached. If engine is detached sufficient hand brakes must be set to prevent uncontrolled movement of cars.

Hand brakes on passenger trains are to be set after engine is spotted for oil. If necessary to detach engine after these hand brakes have been released, employe before detaching engine must see that sufficient hand brakes have again been set.

Hand brakes must be securely set on all cars left at Eagle-Picher plant, Sahuarita. Cars must not be left west of derail.

⊙RULE 826. Phoenix Yard: Indicator lights located above tracks at each end PFE icing platform.

Tucson: Indicator lights located on pole just west of west switch of crossover from work lead to PFE icing platform lead, and above tracks at each end of PFE icing platform govern movements on these tracks as follows:

Green....... Tracks may be used for train or switching movements.

Yellow....... Tracks may be entered and engines, cars or cabooses added or detached, but cars must not be dropped or kicked against cars on those tracks.

Red....... Tracks may be entered but cars on tracks must not be coupled to or moved. Trains made up on these tracks must not depart until it has been ascertained indicator displays green aspect.

Not Lighted. Must be considered as displaying most restrictive indication and icing platform foreman must be contacted for instructions before cars are coupled to or moved.

AIR BRAKE RULES

FREIGHT TRAINS

RULE 22. Trainmen must not couple air hose on outgoing freight trains at Gila until train is made up and engine and caboose on train, unless train is made up by crew making air test and handling the train from Gila.

⊙RULE 24-B. Gila: When engine crew, train crew, or both, are changed on freight trains, but train consist including engine and caboose remains intact, after stopping incoming engineer will make full service brake application and leave brakes applied.

Outgoing trainman, after noting brakes applied on rear car will signal outgoing engineer to release brakes, noting that brakes release on rear car and brake pipe pressure in caboose is being properly restored.

⊙RULE 24-E. Will apply at Tucson.

MISCELLANEOUS

6. Tovrea: Entrance to Cudahy Packing Co. plant is protected by gates, which must be kept closed and locked when not in use. Look out for material alongside tracks around plant.

Coolidge: Gate at entrance to Indian Service spur must be kept closed and locked when not in use.

Rillito: Derail on Arizona Portland Cement spur must be lined before switch to the spur is lined. Cars must not be kicked or dropped into this spur, and cars must not be left standing between derail and 550 feet west of road crossing. Derail must be lined to normal as soon as each movement completed over same. Chains across crusher spur at each end of pit are secured by snaps to posts, and may be unfastened to move cars to or from pit. Chains must be fastened across track when there is no car spotted over pit.

Derail on crusher spur, located 80 feet east of crusher pit, must not be lined for movement into spur until it is known that track over pit is ready for the movement.

PFE Yard: Look out for ice and material alongside PFE tracks.

⊙10. Engines listed must not operate on tracks shown below:

Class of Engine		Restricted Tracks
All engines	Rillito	On open pit at Arizona Portland Cement Co. Trainmen must not cross pit, but must go around pit via stairway.
"	Casa Grande	Track scales on cotton oil mill spur, and Casa Grande Warehouse spur.
"	Sahuarita	Across Eagle-Picher ore bins.
"	Burns	Spur.

⊙11. Load limit (car and contents):

Phoenix-Tucson	251,000 pounds
Gila-Picacho	251,000 pounds
McQueen-Christmas	230,000 pounds
Tempe Jct.-West Chandler	230,000 pounds
Tucson-Nogales	230,000 pounds

Unless authorized by Superintendent, heavier loads must not be handled.

⊙13. LOCATION OF STOCK YARDS

Station	Capacity of cars	
Phoenix	81	(Water)
Normal Jct.	20	(Water)
Falfa	12	(Water)
Chandler	5	
Serape	10	(Water)
Dock	23	(Water)
Coolidge	14	(Water)
Gila	5	(Water)
Maricopa	6	(Water)
Casa Grande	20	(Water)
Picacho	2	(Water)
Red Rock	13	(Water)
Tucson	104	(Water)
Amado	28	(Water)
Otero	4	(Water)
Nogales	97	(Water)
Gilbert	7	(Water)
Higley	Chute	
Queen Creek	8	(Water)
Florence	8	(Water)
West Chandler	14	(Water)

29. Hayden: Kennecott Copper Corporation Railroad between Hayden and Hayden Mills is operated by the Tucson Division and is within Hayden yard limits.

Movements on KCCRR are governed by SPCo Rules and Regulations of the Transportation Department, Air Brake Rules and Regulations, timetable, Special Instructions and timetable bulletins.

Movements between Hayden and Hayden Mills must be spaced 10 minutes apart.

Back-up hose must be used and a trainman must ride in cab of engine when shoving cars Hayden to Hayden Mills.

Flag protection to the rear must be provided as prescribed by Rule 99 between junction switch KCCRR and Hayden Mills derail.

Maximum speed permitted between Hayden and Hayden Mills is 15 MPH. Grade is 2.2 percent descending Hayden Mills to Hayden.

Normal position of KCCRR junction switch is for KCCRR.

Special upper quadrant signals located on mast at train-order office govern movements between train-order office and KCCRR junction switch when train-order operator is on duty.

These signals display stop indication when semaphore arms are in horizontal position.

Westward movements from Christmas Branch must stop before fouling junction switch and may then proceed.

Eastward signal must be placed in stop position while a westward movement is being made from Hayden Mills.

Proceed indication on eastward signal authorizes movement Hayden to Hayden Mills and proceed indication on westward signal authorizes movement from KCCRR junction switch to Hayden. Movements from KCCRR approaching junction switch have preference over westward movements on Christmas Branch.

When both upper quadrant signals display proceed it is an indication that train-order operator is not on duty.

Unit for display of flashing light controlled by train-order operator located on a mast just west of spring derail at Hayden Mills governs westward movements between Hayden Mills and junction switch KCCRR at Hayden when train-order operator is on duty.

When a westward movement is to be made from Hayden Mills to Hayden, a member of crew must first visually ascertain that there is no eastward movement closely approaching Hayden Mills before derail is lined. After derail has been lined for movement, train or engine must not proceed until flashing white light has been displayed. Switching movements over spring derail westward must continue until engine and cars are west of unit for display of flashing white light and derail returned to normal position before reverse movement is made. In either case, if flashing white light is not displayed authorizing desired movement, derail must be returned to normal position before an eastward movement passes location of unit for display of flashing white light.

Westward movements from either AS&R or Ore Bin tracks must not foul adjacent track until flashing white light is displayed.

Should a following eastward movement overtake and couple into a preceding movement between Hayden and spring derail at Hayden Mills, two separate movements must be made over spring derail to announce arrival of second movement.

Impaired overhead and side clearance at Hayden Mills smelter.

Engines and cars must not be operated beyond east derail located east of east switches of sidings on San Manuel Arizona Railroad.

SPECIAL INSTRUCTIONS—PICACHO SUBDIVISION

30.

LOCATION OF OVERHEAD AND SIDE STRUCTURES NOT STANDARD CLEARANCE ON MAIN TRACK AND SIDINGS

Mile Post	Location		Description
	PHOENIX-TUCSON		
914.00		Salt River bridge	Side
959.30		Gila River bridge	Side
983.90	Tucson	Car repair shed	Side
	CHRISTMAS BRANCH		
971.30 to 971.77		Rock cuts	Side
972.40		Tunnel No. 1	Side and Overhead
972.50		Gila River bridge	Side
973.00		Rock cut	Side
973.04		Rock cut	Side
973.07		Rock cut	Side
976.00 to 977.00		Rock cuts	Side
980.00 to 982.00		Rock cuts	Side
983.50		Rock cut	Side
985.30		Gila River bridge	Side
985.50		Rock cut	Side
988.30		Rock cut	Side
988.50		Tunnel No. 2	Side and Overhead
990.00		Tunnel No. 3	Side and Overhead
992.30		Rock cut	Side
998.80	Hayden	Water column	Side
1003.50	Winkleman	Corral track	Side
1006.50		Rock cut	Side
1009.20		Tunnel No. 4	Side and Overhead
	NOGALES BRANCH		
988.30	Tucson	Loading chute	Side

SPEED RESTRICTIONS FOR OTHER THAN MAIN TRACKS

	With Caution Not Exceeding MPH
Through sidings, yard and other tracks, wyes, balloon tracks, crossovers and turnouts, except:	15
Through turnouts on other than sidings	10
On branches	10
Through all sidings, yard tracks and other tracks with engine running backward	10
On yard tracks Nos. 1 to 7, inc., PFE yard	10
Through westward siding and west switch, Stockham	25
On Government tracks at Higley airport	10
On Eagle-Picher spur, Sahuarita	10

SPECIAL INSTRUCTIONS—PICACHO SUBDIVISION

⊙SPEED RESTRICTIONS FOR TRAINS: Maximum speed of trains in territory shown below is subject to further restrictions applicable to engines in the train as shown in SPEED RESTRICTIONS FOR ENGINES, and MAXIMUM SPEED PERMITTED WITH CERTAIN EQUIPMENT and OTHER MAXIMUM SPEEDS appearing on page 4 of Special Instructions for All Subdivisions. Speed must be further reduced as prescribed by speed signs, except as specifically authorized by Special Instructions herein, or by timetable bulletin.

All trains must run carefully during and after heavy storms, particularly when the track is apt to be affected. When fog, storms or other conditions obscure track or signals, speed of trains must be so reduced as to permit strict observance of signals and INSURE SAFETY, REGARDLESS OF TIME.

TERRITORY (MP to MP)	PASSENGER TRAINS (Column 1)	FREIGHT AND MIXED (Column 2)	LIGHT ENGINES (Column 3)
EASTWARD, PHOENIX TO PICACHO:			
905.51 to 907.43	20	20	20
907.43 to 907.45 (spring switch)	15	15	15
907.45 to 907.91	20	20	20
907.91 to 908.27	30	25	30
908.27 to 908.79	40	25	40
908.79 to 912.74	40	40	40
912.74 to 913.77	40	25	40
★913.77 to 915.32 (Tempe)	20	20	20
★915.32 to 915.97 (Tempe)	30	30	30
★915.97 to 916.48 (Tempe)	40	40	40
★916.48 to 918.46 (Tempe)	60	55	60
918.46 to 920.84	79	55	70
920.84 to 922.04	25	25	25
922.04 to 924.63	60	45	60
924.63 to 926.95	79	55	70
926.95 to 928.57	60	45	60
928.57 to 929.57	40	35	40
929.57 to 943.93	79	55	70
943.93 to 945.49	70	55	70
945.49 to 946.80	60	50	60
946.80 to 958.02	79	55	70
958.02 to 959.39	70	55	70
959.39 to 961.35	79	55	70
961.35 to 962.36	35	35	35
962.36 to 979.32	79	55	70
979.32 to 979.75 (936.69)	25	25	25
EASTWARD, PICACHO TO TUCSON:			
936.69 to 936.82	70	60	70
936.82 to 975.57	79	60	70
975.57 to 975.96	75	60	70
975.96 to 979.37	79	60	70
979.37 to 979.40	50	50	50
979.40 to 981.91	79	60	70
981.91 to 982.73	40	40	40
982.73 to 986.00	20	20	20
EASTWARD, GILA TO PICACHO:			
825.18 to 855.75	70	60	70
855.75 to 855.77	30	30	30
855.77 to 866.98	70	50	70
866.98 to 867.85	50	50	50
867.85 to 870.12	30	30	30
870.12 to 874.48	55	50	55
874.48 to 918.40	70	60	70
918.40 to 919.24	25	25	25
919.24 to 936.69	70	60	70
EASTWARD, PHOENIX YARD TO KENDALL ON SECOND MAIN TRACK:			
907.82 to 907.91	..	20	20
907.91 to 911.01	..	25	25
911.01 to 911.38	..	20	20

TERRITORY (MP to MP)	PASSENGER TRAINS (Column 1)	FREIGHT AND MIXED (Column 2)	LIGHT ENGINES (Column 3)
WESTWARD, TUCSON TO PICACHO:			
986.00 to 982.73	20	20	20
982.73 to 981.91	40	40	40
981.91 to 979.40	79	60	70
979.40 to 979.37	50	50	50
979.37 to 975.96	79	60	70
975.96 to 975.57	75	60	70
975.57 to 936.82	79	60	70
936.82 to 936.69 (979.75)	70	60	70
WESTWARD, PICACHO TO PHOENIX:			
979.75 to 979.32	25	25	25
979.32 to 962.36	79	55	70
962.36 to 961.35	35	35	35
961.35 to 959.39	79	60	70
959.39 to 958.02	70	55	70
958.02 to 946.80	79	55	70
946.80 to 945.49	60	50	60
945.49 to 943.93	70	55	70
943.93 to 929.57	79	55	70
929.57 to 928.57	40	35	40
928.57 to 926.95	60	45	60
926.95 to 924.63	79	55	70
924.63 to 922.04	60	45	60
922.04 to 920.84	25	25	25
920.84 to 918.46	79	55	70
★918.46 to 916.48 (Tempe)	60	55	60
★916.48 to 915.97 (Tempe)	40	40	40
★915.97 to 915.32 (Tempe)	30	30	30
★915.32 to 913.77 (Tempe)	20	20	20
913.77 to 912.74	40	25	40
912.74 to 908.79	40	40	40
908.79 to 908.27	40	25	40
908.27 to 907.91	30	25	30
907.91 to 907.45	20	20	20
907.45 to 907.43 (spring switch)	15	15	15
907.43 to 905.51	20	20	20
WESTWARD, PICACHO TO GILA:			
936.69 to 919.24	70	60	70
919.24 to 918.40	25	25	25
918.40 to 874.48	70	60	70
874.48 to 870.12	55	50	55
870.12 to 867.85	30	30	30
867.85 to 866.98	50	50	50
866.98 to 855.77	70	50	70
855.77 to 855.75	30	30	30
855.75 to 825.18	70	60	70
WESTWARD, KENDALL TO PHOENIX YARD ON SECOND MAIN TRACK:			
911.38 to 911.01	..	20	20
911.01 to 907.91	..	25	25
907.91 to 907.82	..	20	20

★Regulated by City ordinance.

BSM and MX, with maximum of 60 cars or 2,500 tons and containing no restricted cars, are authorized to operate at speeds shown in Column 1, except must not exceed 60 MPH.

SPECIAL INSTRUCTIONS—PICACHO SUBDIVISION

⊙SPEED RESTRICTIONS FOR TRAINS: Maximum speed of trains in territory shown below is subject to further restrictions applicable to engines in the train as shown in SPEED RESTRICTIONS FOR ENGINES, and MAXIMUM SPEED PERMITTED WITH CERTAIN EQUIPMENT and OTHER MAXIMUM SPEEDS appearing on page 4 of Special Instructions for All Subdivisions. Speed must be further reduced as prescribed by speed signs, except as specifically authorized by Special Instructions herein, or by timetable bulletin.

All trains must run carefully during and after heavy storms, particularly when the track is apt to be affected. When fog, storms or other conditions obscure track or signals, speed of trains must be so reduced as to permit strict observance of signals and INSURE SAFETY, REGARDLESS OF TIME.

TERRITORY (MP to MP)	FREIGHT AND MIXED	LIGHT ENGINES
Column:	1	2
EASTWARD, McQUEEN TO CHRISTMAS:		
923.90 to 924.08	25	25
924.08 to 955.93	30	30
955.93 to 956.07	25	25
956.07 to 964.28	30	30
964.28 to 964.54	20	20
964.54 to 971.05	30	30
971.05 to 972.08	25	25
972.08 to 972.45	15	15
972.45 to 974.12	25	25
974.12 to 976.38	20	20
976.38 to 980.36	25	25
980.36 to 981.88	20	20
981.88 to 983.27	25	25
983.27 to 983.52	20	20
983.52 to 984.60	25	25
984.60 to 984.80	10	10
984.80 to 986.07	25	25
986.07 to 988.24	20	20
988.24 to 989.70	25	25
989.70 to 996.62	40	40
996.62 to 996.74	25	25
996.74 to 998.90	40	40
998.90 to 999.53	25	25
999.53 to 1000.64	15	15
1000.64 to 1010.88	10	10
EASTWARD, TEMPE JCT. TO WEST CHANDLER:	20	20
EASTWARD, TUCSON TO NOGALES:		
984.04 to 985.81	15	15
985.81 to 987.57	20	20
987.57 to 996.75	49	49
996.75 to 1046.37	30	30
★1046.37 to 1049.80 (Nogales)	20	20

TERRITORY (MP to MP)	FREIGHT AND MIXED	LIGHT ENGINES
Column:	1	2
WESTWARD, CHRISTMAS TO McQUEEN:		
1010.88 to 1000.64	10	10
1000.64 to 999.53	15	15
999.53 to 998.90	25	25
998.90 to 996.74	40	40
996.74 to 996.62	25	25
996.62 to 989.70	40	40
989.70 to 988.24	25	25
988.24 to 986.07	20	20
986.07 to 984.80	25	25
984.80 to 984.60	10	10
984.60 to 983.52	25	25
983.52 to 983.27	20	20
983.27 to 981.88	25	25
981.88 to 980.36	20	20
980.36 to 976.38	25	25
976.38 to 974.12	20	20
974.12 to 972.45	25	25
972.45 to 972.08	15	15
972.08 to 971.05	25	25
971.05 to 964.54	30	30
964.54 to 964.28	20	20
964.28 to 956.07	30	30
956.07 to 955.93	25	25
955.93 to 924.08	30	30
924.08 to 923.90	25	25
WESTWARD, WEST CGANDLER TO TEMPE JCT.:	20	20
WESTWARD, NOGALES TO TUCSON:		
★1049.80 to 1046.37	20	20
1046.37 to 996.75	30	30
996.75 to 987.57	49	49
987.57 to 985.81	20	20
985.81 to 984.04	15	15

★Regulated by City ordinance.

CHRISTMAS BRANCH

Engines of classes DF-4, 11 and 12, running light or handling trains, must not exceed 15 MPH where authorized speed is greater than 15 MPH between MP 923.90 and MP 988.24.

Engines of classes DF-608 and 609, running light or handling trains, must not exceed 25 MPH where authorized speed is greater than 25 MPH between MP 923.90 and MP 988.24.

NOGALES BRANCH

Engines of classes DF-1 to 12, DS-101, 109 and 113, running light or handling trains, must not exceed 20 MPH between MP 996.75 and MP 1024.90, between MP 1028.10 and MP 1039.80, between MP 1042.79 and MP 1049.89.

Engines of classes DF-603 and 606, running light or handling trains, must not exceed 30 MPH between MP 987.42 and MP 1039.80 and must not exceed 20 MPH between MP 1039.80 and MP 1046.37.

Engines of classes DF-605, 607, 610 and 611, running light or handling trains, must not exceed 35 MPH between MP 987.42 and MP 1039.80 and must not exceed 25 MPH between MP 1039.80 and MP 1046.37.

Engines of classes DF-608 and 609, running light or handling trains must not exceed 25 MPH between MP 987.42 and MP 1039.80 and must not exceed 15 MPH between MP 1039.80 and MP 1049.80.

RATING OF ENGINES—In Units of 2000 Lbs. (Tons)

NOMINAL CLASS	ENGINE NUMBERS	Maricopa to Tucson, Phoenix to Picacho	Gila to Estrella	Estrella to Maricopa, Tucson to Maricopa, Estrella to Gila, Picacho to Phoenix Yard	Maricopa to Estrella
DP-4, 7, 12	6000 to 6004, 6017, 6018, 6046 to 6054, 5900 to 5909, 5916, 5917	2150	1375	3075	2150
DP-5, 6, 8 to 11	6005 to 6016, 6055 to 6058, 5910 to 5915			....	....
	6019 to 6033, 5918 to 5924			....	....
	6034 to 6045	2975	1925	3075	2975
DF-1 to 12	6138 to 6461, 8022 to 8303, except	2425	1525	3400	2425
	with 61:16 gear ratio	2100	1375	2950	2100
	with 60:17 gear ratio	2150	1250	2700	2150
DF-100	5200 to 5202			....	....
DF-101 to 108, 110, 112	4900 to 4902, 5203 to 5249, 5253 to 5278	3325	2150	4800	3325
DF-109, 111	4903 to 4905, 5250 to 5252			5000	4875
DF-114, 116 to 118, 120 to 122, 124, 125	5279 to 5293, 5308 to 5335, 5340 to 5444, 5449 to 5493	4000	2600	5900	4000
DF-115, 119, 123, 126	5294 to 5307, 5336 to 5339, 5445 to 5448, 5494 to 5507	3375	2200	4775	3375
DF-200 to 206	5100 to 5120			....	....
DF-300 to 304	4600 to 4623, 4700 to 4703	2025	1325	2925	2025
DF-305, 306	4624 to 4633	2275	1500	3225	2275
DF-307	4634 to 4645	....	....	....	....
DF-500, 501	4800 to 4815			....	....
DF-603, 605 to 607, 611, 612	5600 to 5719, 5730 to 5799, 5800 to 5844	3175	1850	4375	3175
DF-608 to 610, 613	5720 to 5729, 5845 to 5859	....	....	....	....
DS-1 to 8	1000 to 1032	1025	650	1475	1025
DS-9 to 12	1033 to 1090	1825	1200	2600	1825
DS-100 to 109, 111, 115, 119	1300 to 1441, 1464 to 1485, 1514 to 1528, 1551 to 1567	1575	1025	2225	1575
DS-110, 114, 118	1442 to 1463, 1492 to 1513, 1539 to 1550	2000	1300	2900	2000
DS-113, 117, 120 to 122	1486 to 1491, 1529 to 1538, 1568 to 1596	1925	1300	2700	1925
DS-200, 201	1900 to 1903	....	....	....	....

UNLESS AUTHORIZED BY SUPERINTENDENT, ENGINES WILL NOT BE PERMITTED TO OPERATE IN THOSE TERRITORIES WHERE NO RATING IS SHOWN IN ENGINE RATING TABLE.

RATING OF ENGINES—In Units of 2000 Lbs. (Tons)

NOMINAL CLASS	ENGINE NUMBERS	McQueen to Christmas	Christmas to McQueen	Tucson to Calabasas	Calabasas to Nogales	Nogales to Tucson
DF-1 to 12	6138 to 6461, 8022 to 8303, except	2625	3125	2175	1600	6050
	with 61:16 gear ratio					
	with 60:17 gear ratio					
DF-100	5200 to 5202					
DF-101 to 108, 110, 112	4900 to 4902, 5203 to 5249, 5253 to 5278	3600	4325	3900	2175	5000
DF-109, 111	4903 to 4905, 5250 to 5252					
DF-114, 116 to 118, 120 to 122, 124, 125	5279 to 5293, 5308 to 5335, 5340 to 5444, 5449 to 5493	4400	5300	4400	2600	10000
DF-115, 119, 123, 126	5294 to 5307, 5336 to 5339, 5445 to 5448, 5494 to 5507	3625	4325	3000	2200	10000
DF-200 to 206	5100 to 5120	....	....	....	....	....
DF-300 to 304	4600 to 4623, 4700 to 4703	2200	2625	1825	1325	4000
DF-305, 306	4624 to 4633	2475	2950	2050	1500	4000
DF-307	4634 to 4645	....	....	....	....	....
DF-500, 501	4800 to 4815	....	....	4075	3000	10000
DF-603, 605 to 607, 611, 612	5600 to 5719, 5730 to 5799, 5800 to 5844	3175	3600	2525	1850	10000
DF-608 to 610, 613	5720 to 5729, 5845 to 5859					
DS-1 to 8	1000 to 1032	1375	1650	1125	825	4000
DS-9 to 12	1033 to 1090	1975	2350	1650	1200	4000
DS-100 to 109, 111, 115 119	1300 to 1441, 1464 to 1485, 1514 to 1528, 1551 to 1567	2125	2550	1750	1275	4000
DS-110, 114, 118	1442 to 1463, 1492 to 1513, 1539 to 1550	2175	2600	1800	1300	4000
DS-113, 117, 120 to 122	1486 to 1491, 1529 to 1538, 1568 to 1596	2075	2450	1725	1250	4000
DS-200, 201	1900 to 1903					

UNLESS AUTHORIZED BY SUPERINTENDENT, ENGINES WILL NOT BE PERMITTED TO OPERATE IN THOSE TERRITORIES WHERE NO RATING IS SHOWN IN ENGINE RATING TABLE.

⊙**RULES 7-A and 10-G.** Yellow signals and unattended red flags and red lights must be placed to the left of track in the direction of movement on No. 1 Track and No. 2 Track between P.F.E. Yard, MP 987.76, and MP 1000.22 west of Vail.

⊙**RULE 10-J.** Speed signs to left of track:

Eastward	Reading	Westward	Reading
MP 1036.21	30-25	MP 1053.11	40-35
MP 1065.00	79-60	MP 1082.80	79-60
MP 1091.00	79-60		

⊙**RULE 21-C.** At P.F.E. Yard incoming trains may display indicators until arrival of engine on service track.

⊙**RULE 93.** Yard limits within which the provisions of Rule 93 will apply are established at the following points:

West MP		East MP
977.96	Tucson (No. 2 Track)	993.00
	" (No. 1 Track)	992.09
	" (Nogales Br.)	987.42
	Benson (Benson-Fairbank Br.)	1034.00
	Bowie (Globe Br.)	1099.50
1136.65	Safford	1138.34
1218.70	Globe	1223.22
1229.82	Miami	1232.98

P.F.E. Yard: Eastward freight trains may depart from yard tracks when ready, using No. 1 East lead unless otherwise instructed, being governed by indications displayed by "SA" signals on leads for crossover movement to No. 2 track.

RULE 99-C. Will apply as follows:
On Globe Branch.

⊙**RULE 103-A.** A flagman must precede all movements over:

PFE Yard: All crossings within Southern Pacific Pipe Line reservation.

Globe: Trains and engines must stop before proceeding over Hackney Ave. crossing.

RULE 103-B. Back-up hose must be used when shoving cars, between North and South yards Tucson and/or PFE Yard.

Back-up hose must be used on leading car when shoving cars on Government tracks at Airport at Wilmot.

RULE 104. Normal position of rigid switches at the end of double track and at junctions, is as follows:

Benson........Benson-Fairbank Branch, for track No. 2.
Bowie........Globe Branch, for siding.

RULE 286. When distant signals governing movements on controlled sidings display yellow aspect, train may proceed on siding at restricted speed expecting to find siding occupied by preceding train.

⊙**RULE 306.** The following block signals equipped with triangular plate displaying the letter "P", have included in their control limits some special protective device:

Eastward Signals	Protection	Westward Signals
P-9850	Spring switch, West end crossover, Cherry Ave.	
	Spring switches, East ends crossovers, Cherry Ave.	P-9853
	Spring switch, end double track, PFE Yard, MP 985.48	P-SA
P-SA	Spring switch, end double track, PFE Yard, MP 987.7	
P-10140	Collision detector, underpass, MP 1014.00	
P-A	Spring switch, West end crossover to North siding, Mescal	
	Spring switch, East end crossover to Fairbank Line	P-A
P-A	Collision detector, Luzena underpass, MP 1091.04	P-A
P-SA	Spring switch, West end No. 1 yard track, Lordsburg	

⊙**RULE 505. AUTOMATIC BLOCK SIGNAL SYSTEM**

PFE Yard-Mescal: Eastward and westward trains moving against current of traffic on No. 1 and No. 2 Tracks will have no block signal protection.

⊙**RULE 535. SPRING SWITCHES**

Spring switches equipped with facing point locks are located as follows:

Location		Normal Position
PFE Yard	End double track, MP 985.48	Westward track
PFE Yard	End double track, MP 987.7	No. 2 track
*Wilmot	East end, Eastward siding	No. 2 track
Mescal	West end, West crossover	No. 1 track
Mescal	East end, crossover to Fairbank line	Main track
Lordsburg	West end, No. 1 yard track	Main track

Spring switches not equipped with facing point locks are located as follows:

Location		Normal Position
*Tucson	West end crossover, Cherry Ave.	Westward track
*Tucson	East end crossover, Cherry Ave.	Crossover
*Tucson	West end crossover from Nogales lead, Cherry Ave.	Eastward track
*Pantano	East end siding	No. 2 track

*Equipped with switch-point indicator.

Pantano: Facing point movement over spring switch East end siding must not exceed 20 MPH.

⊙**RULE 705. LETTER TYPE INDICATORS**

Indicators located as follows:

Illum. Letter	On Signal	Approaching	Authorizes and Requires Movement as Follows
S	Mast opposite 9916	Wilmot	Enter eastward siding Wilmot and remain in siding until letter "M" is displayed.
M	Signal bridge east end siding	Wilmot	Enter No. 2 track and proceed as prescribed by Rule D-251.
S	Cantilever mast 9977	Wilmot	Enter westward siding Wilmot and remain in siding until letter "M" is displayed.
M	Signal bridge west end siding	Wilmot	Enter No. 1 track and proceed as prescribed by Rule D-251.
S	10104	Pantano	Enter siding Pantano and remain in siding until letter "M" is displayed.
M	10126	East end siding Pantano	Enter No. 2 track and proceed as prescribed by Rule D-251.
S	"A" signal west end south siding	Mescal	Enter south siding.
S	11015	Bowie	Enter station track at East switch MP 1099.63.
M	11464	Lordsburg	Proceed to train-order office.
S	11464	Lordsburg	Proceed to west crossover for instructions to enter yard.

RULE 760. CENTRALIZED TRAFFIC CONTROL

PFE Yard: Limits extend from Cherry Ave., MP 985.48, to East end PFE Yard, MP 987.92.

Mescal-Lordsburg: Limits extend from west switches of North and South sidings Mescal, MP 1023.00 to West switch of No. 1 track Lordsburg, MP 1147.66.

Mescal: North siding is controlled siding. Electric locked hand operated switches at West end of South siding and East end of crossover from South siding to main track are controlled by train dispatcher.

Bowie: First track north of main track, east of controlled siding, capacity 130 cars, is station track and must be kept clear of cars for meeting or passing trains as directed by Train Dispatcher. Permission must be obtained from Train Dispatcher before using this track for switching movements.

GENERAL REGULATIONS

⊙**RULE 825.** Instructions for setting hand brakes:

Tucson:	Passenger trains	Two brakes on west end, Two brakes on east end;
	*Freight trains	Fifteen brakes on west end, Ten brakes on east end.
PFE Yard:	*Freight trains	Fifteen brakes on west end, Ten brakes on east end.

*Hand brakes will not be set if engine is not detached, no switching is to be performed, and outgoing crew takes charge of train on arrival.

Tucson: Hand brakes will not be set on Golden State and Sunset unless engine is detached. If engine is detached sufficient hand brakes must be set to prevent uncontrolled movement of cars.

Hand brakes on passenger trains are to be set after engine is spotted for oil. If necessary to detach engine after these hand brakes have been released, employe before detaching engine must see that sufficient hand brakes have again been set.

Portable rail skids are hung on posts at lower end of sidings at:

Chamiso, Fenner, Sibyl.

When necessary to leave cars on any of these sidings permission must first be obtained from chief train dispatcher, after which rail skid must be placed on rail and leading wheel of first car in descending direction run onto the rail skid, and hand brakes set if brakes are operative, before engine is detached. Trains picking up cars from these sidings must remove rail skid and return it to proper post and lock it in place with switch lock.

RULE 826. Tucson: Indicator lights located on pole just west of west switch of crossover from work lead to PFE Icing Platform lead, and above tracks at each end of PFE Icing Platform govern movements on these tracks as follows:

Green	Tracks may be used for train or switching movements.
Yellow	Tracks may be entered and engines, cars or cabooses added or detached, but cars must not be dropped or kicked against cars on those tracks.
Red	Tracks may be entered but cars on tracks must not be coupled to or moved. Trains made up on these tracks must not depart until it has been ascertained indicator displays green aspect.
Not Lighted	Must be considered as displaying most restrictive indication and icing platform foreman must be contacted for instructions before cars are coupled or moved.

AIR BRAKE RULES

FREIGHT TRAINS

⊙**RULE 24-E.** Will apply at Tucson.

RULE 33. The tonnage per operative brake Pinal to Burch, and Pinal to Cutter, must not exceed 60 tons.

TRAIN HANDLING

RULE 60. On freight trains using dynamic brakes, before entering or leaving siding, turnout or crossover on descending grade between Pantano and Mondel, and Cutter and Miami, dynamic braking force must be reduced to one half of the maximum and, if necessary, automatic brake applied sufficiently so that speed of 15 MPH will not be exceeded while engine is moving between points 500 feet before reaching and 1500 feet after passing turnout or crossover.

MISCELLANEOUS

⊙**10. PFE Yard:** Look out for ice and material alongside PFE tracks.

⊙**11.** Load limit (car and contents):

Tucson-Lordsburg	251,000 pounds
Bowie-Miami	230,000 pounds

Unless authorized by Superintendent, heavier loads must not be handled.

⊙**12.** No. 1 Track and No. 2 Track Bowie subdivision will be operated under double track rules, No. 1 Track westward track and No. 2 Track eastward track.

Limits of double track operation between PFE Yard and Mescal will be as follows:

Eastward—via No. 2 Track to west CTC limit at Mescal, MP 1023.00.

Westward—via No. 1 Track from west CTC limit at Mescal MP 1023.00, to PFE Yard MP 987.76.

⊙**13.** LOCATION OF STOCK YARDS

Station	Capacity in cars	
Tucson	104	(Water)
Cochise	19	(Water)
Willcox	34	(Water)
Bowie	13	(Water)
San Simon	14	(Water)
Lordsburg	55	(Water)
Solomon	6	(Water)
Safford	2	(Water)
Dublin	11	(Water)
Fort Thomas	9	(Water)
Calva	39	(Water)
San Carlos	37	(Water)
Pinal	1	
Radium	11	(Water)

⊙**30.**

LOCATION OF OVERHEAD AND SIDE STRUCTURES NOT STANDARD CLEARANCE ON MAIN TRACK AND SIDINGS

Mile Post		Location	Description
983.90	Tucson	Car Repair shed	Side
1008.10		Cienega Creek bridge	Side
1008.20		Rock cut	Side
1008.30		Rock cut	Side
1032.50	Benson	San Pedro River bridge	Side
1098.40	Bowie	Water column	Side
		GLOBE BRANCH	
1201.10	San Carlos	Water tank spout	Overhead & Side

SPECIAL INSTRUCTIONS–BOWIE SUBDIVISION

⊙SPEED RESTRICTIONS FOR TRAINS: Maximum speed of trains in territory shown below is subject to further restrictions applicable to engines in the train as shown in SPEED RESTRICTIONS FOR ENGINES, and MAXIMUM SPEED PERMITTED WITH CERTAIN EQUIPMENT and OTHER MAXIMUM SPEEDS appearing on page 4 of Special Instructions for All Subdivisions. Speed must be further reduced as prescribed by speed signs, except as specifically authorized by Special Instructions herein, or by timetable bulletin.

All trains must run carefully during and after heavy storms, particularly when the track is apt to be affected. When fog, storms or other conditions obscure track or signals, speed of trains must be so reduced as to permit strict observance of signals and INSURE SAFETY, REGARDLESS OF TIME.

TERRITORY (MP to MP)	PASSENGER TRAINS	FREIGHT AND MIXED	LIGHT ENGINES
Column:	1	2	3
EASTWARD, TUCSON TO LORDSBURG:			
982.73 to 986.00	20	20	20
986.00 to 987.92	65	45	65
987.92 to 990.25	50	45	50
990.25 to 1000.00	79	50	70
1000.00 to 1003.88	75	50	70
1003.88 to 1006.98	30	25	30
1006.98 to 1008.39	25	25	25
1008.39 to 1010.36	30	30	30
1010.36 to 1012.62	50	50	50
1012.62 to 1014.00	30	25	30
1014.00 to 1016.77	50	50	50
1016.77 to 1018.08	30	25	30
1018.08 to 1021.63	45	40	45
1021.63 to 1026.00 except:	50	45	50
Mescal, through crossover to Fairbank Line	25	25	25
1026.00 to 1030.86	65	55	65
1030.86 to 1033.48	40	35	40
1033.48 to 1036.96	60	45	60
1036.96 to 1040.00	30	25	30
1040.00 to 1046.97	45	40	45
1046.97 to 1052.36	40	35	40
1052.36 to 1058.00	55	50	55
1058.00 to 1065.00	79	50	70
1065.00 to 1074.27	79	60	70
★1074.27 to 1075.28 (Willcox)	30	30	30
1075.28 to 1082.80	79	60	70
1082.80 to 1089.00	70	50	70
1089.00 to 1091.00	70	60	70
1091.00 to 1116.00	79	60	70
1116.00 to 1121.00	79	50	70
1121.00 to 1125.06	50	45	50
1125.06 to 1128.68	30	25	30
1128.68 to 1131.00	70	50	70
1131.00 to 1144.60	79	60	70
1144.60 to 1147.60	70	60	70
1147.60 to 1148.30	30	30	30

TERRITORY (MP to MP)	PASSENGER TRAINS	FREIGHT AND MIXED	LIGHT ENGINES
Column:	1	2	3
WESTWARD, LORDSBURG TO TUCSON:			
1148.30 to 1147.60	30	30	30
1147.60 to 1144.60	70	60	70
1144.60 to 1131.00	79	60	70
1131.00 to 1128.68	70	50	70
1128.68 to 1125.06	30	25	30
1125.06 to 1121.00	50	45	50
1121.00 to 1116.00	79	50	70
1116.00 to 1091.00	79	60	70
1091.00 to 1089.00	70	60	70
1089.00 to 1082.80	70	50	70
1082.80 to 1075.28	79	60	70
★1075.28 to 1074.27 (Willcox)	30	30	30
1074.27 to 1065.00	79	60	70
1065.00 to 1058.00	79	50	70
1058.00 to 1052.36	55	50	55
1052.36 to 1046.97	40	35	40
1046.97 to 1040.00	45	40	45
1040.00 to 1036.96	30	25	30
1036.96 to 1033.48	60	40	60
1033.48 to 1030.86	40	35	40
1030.86 to 1026.00	65	55	65
1026.00 to 1023.05 (1021.29)	50	45	50
Mescal, thru crossover	25	25	25
1021.29 to 1008.40	65	50	65
1008.40 to 1007.45	60	50	60
1007.45 to 990.30	79	50	70
990.30 to 986.00	50	45	50
986.00 to 982.73	20	20	20

★Regulated by City ordinance.

Light engines on descending grades without dynamic brakes in operation must not exceed speed shown for freight and mixed trains.

BSM and MX, with maximum of 60 cars or 2,500 tons and containing no restricted cars, are authorized to operate at speeds shown in Column 1, except must not exceed 60 MPH.

SPECIAL INSTRUCTIONS—BOWIE SUBDIVISION

⊙SPEED RESTRICTIONS FOR TRAINS: Maximum speed of trains in territory shown below is subject to further restrictions applicable to engines in the train as shown in SPEED RESTRICTIONS FOR ENGINES, and MAXIMUM SPEED PERMITTED WITH CERTAIN EQUIPMENT and OTHER MAXIMUM SPEEDS appearing on page 4 of Special Instructions for All Subdivisions. Speed must be further reduced as prescribed by speed signs, except as specifically authorized by Special Instructions herein, or by timetable bulletin.

All trains must run carefully during and after heavy storms, particularly when the track is apt to be affected. When fog, storms or other conditions obscure track or signals, speed of trains must be so reduced as to permit strict observance of signals and INSURE SAFETY, REGARDLESS OF TIME.

TERRITORY MP to MP	FREIGHT AND MIXED (Column 1)	LIGHT ENGINES (Column 2)
EASTWARD, BOWIE TO MIAMI:		
1098.12 to 1099.50	15	15
1099.50 to 1126.12	*30	*30
1126.12 to 1126.43	30	30
1126.43 to 1136.65	*30	*30
1136.65 to 1138.34	15	15
1138.34 to 1145.33	*30	*30
★1145.33 to 1146.42 (Pima)	25	25
1146.42 to 1178.03	*30	*30
1178.03 to 1178.17	25	25
1178.17 to 1183.70	*30	*30
1183.70 to 1195.00	20	20
1195.00 to 1207.01	25	25
1207.01 to 1217.52	*30	*30
1217.52 to 1220.59	20	20
1220.59 to 1232.98	15	15

TERRITORY MP to MP	FREIGHT AND MIXED (Column 1)	LIGHT ENGINES (Column 2)
WESTWARD, MIAMI TO BOWIE:		
1232.98 to 1220.59	15	15
1220.59 to 1217.52	20	20
1217.52 to 1207.01	*30	*30
1207.01 to 1195.00	25	25
1195.00 to 1183.70	20	20
1183.70 to 1178.17	*30	*30
1178.17 to 1178.03	25	25
1178.03 to 1146.42	*30	*30
★1146.42 to 1145.33 (Pima)	25	25
1145.33 to 1138.34	*30	*30
1138.34 to 1136.65	15	15
1136.65 to 1126.43	*30	*30
1126.43 to 1126.12	30	30
1126.12 to 1099.50	*30	*30
1099.50 to 1098.12	15	15

★Regulated by City ordinance.

*DS-101, 109, engs. 1310-1319, 1403-1425 must not exceed 25 MPH.

Engines of classes DF-603-5-6-7-11, running light or handling trains, must not exceed 25 MPH between MP 1098.12 to MP 1232.98 eastward and MP 1232.98 to MP 1098.12 westward where authorized speed is greater than 25 MPH.

SPEED RESTRICTIONS FOR OTHER THAN MAIN TRACKS	With Caution Not Exceeding MPH
Through controlled sidings, except:	25
Mescal, North siding	15
Through other sidings, yard and other tracks, wyes, balloon tracks, crossovers and turnouts, except:	15
Through slip switches	10
Through turnouts on other than sidings	10
On branches	10
On PFE yard tracks Nos. 1 to 7, inc.	10
On Government tracks at Wilmot airport	10

SPECIAL INSTRUCTIONS—BOWIE SUBDIVISION

RATING OF ENGINES—In Units of 2000 Lbs. (Tons)

NOMINAL CLASS	ENGINE NUMBERS	Tucson to Mescal (No. 2 Track)	Benson to Dragoon San Simon to Steins	Mescal to Benson Dragoon to Willcox Raso to San Simon Steins to MP 1136.5 MP 1143.9 to Lordsburg	Willcox to Raso MP 1136.5 to MP 1143.9	Lordsburg to MP 1143.9
DP-4, 7, 12	6000 to 6004, 6017, 6018, 6046 to 6054, 5900 to 5909, 5916, 5917	1350	950	5500	1775	1975
DP-5, 6, 8 to 11	6005 to 6016, 6055 to 6058, 5910 to 5915	....	....	....	....	....
	6019 to 6033, 5918 to 5924	....	....	....	....	....
	6034 to 6045	1350	1325	5525	2425	3275
DF-1 to 12	6138 to 6461, 8022 to 8303, except	1925	①1300	6050	2000	2225
	with 61:16 gear ratio	1350	975	5275	1725	1925
	with 60:17 gear ratio	1250	875	4750	1575	1750
DF-100	5200 to 5202	....	....	....	....	....
DF-101 to 108, 110, 112	4900 to 4902, 5203 to 5249, 5253 to 5278	2075	1500	5000	2725	3025
DF-109, 111	4903 to 4905, 5250 to 5252	....	....	....	....	....
DF-114, 116 to 118, 120 to 122, 124, 125	5279 to 5293, 5308 to 5335, 5340 to 5444, 5449 to 5493	2550	1800	10000	3350	3700
DF-115, 119, 123, 126	5294 to 5307, 5336 to 5339, 5445 to 5448, 5494 to 5507	2150	1550	10000	2775	3075
DF-200 to 206	5100 to 5120	825	....	3000	....	....
DF-300 to 304	4600 to 4623, 4700 to 4703	1300	925	4000	1675	1860
DF-305, 306	4624 to 4633	1450	1050	4000	1875	2075
DF-307	4634 to 4645					
DF-500, 501	4800 to 4815	2925	2100	10000	3775	4150
DF-603, 605 to 607, 611, 612	5600 to 5719, 5730 to 5799, 5800 to 5844	1825	1300	10000	2350	2575
DF-608 to 610, 613	5720 to 5729, 5845 to 5859	....				
DS-1 to 8	1000 to 1032	650	450	4000	850	850
DS-9 to 12	1033 to 1090	1150	825	4000	1500	1675
DS-100 to 109, 111, 115, 119	1300 to 1441, 1464 to 1485, 1514 to 1528, 1551 to 1567	975	700	4000	1275	1425
DS-110, 114, 118	1442 to 1463, 1492 to 1513, 1539 to 1550	1250	975	4000	1775	1975
DS-113, 117, 120 to 122	1486 to 1491, 1529 to 1538, 1568 to 1596	1225	850	4000	1575	1750
DS-200, 201	1900 to 1903			....	....	....

①Rating Benson to Dragoon 1325.

UNLESS AUTHORIZED BY SUPERINTENDENT, ENGINES WILL NOT BE PERMITTED TO OPERATE IN THOSE TERRITORIES WHERE NO RATING IS SHOWN IN ENGINE RATING TABLE.

RATING OF ENGINES—In Units of 2000 Lbs. (Tons)

NOMINAL CLASS	ENGINE NUMBERS	MP 1143.9 to Mondel Steins to San Simon Raso to 2 M E Cochise Dragoon to Benson Mescal to Tucson (No. 1 Track)	San Simon to Bowie	Bowie to Raso 2 M E Cochise to Dragoon	Mondel to Steins Benson to Mescal
DP-4, 7, 12	6000 to 6004, 6017, 6018, 6046 to 6054, 5900 to 5909, 5916, 5917	5500	2200	1350	1000
DP-5, 6, 8 to 11	6005 to 6016, 6055 to 6058, 5910 to 5915	....	....	....	....
	6019 to 6033, 5918 to 5924	....	....	....	....
	6034 to 6045	5525	3700	1875	1375
DF-1 to 12	6138 to 6461, 8022 to 8303, except	6050	2475	1575	1325
	with 61:16 gear ratio	5275	2150	1350	1000
	with 60:17 gear ratio	4750	2150	1225	900
DF-100	5200 to 5202	....	....	....	....
DF-101 to 108, 110, 112	4900 to 4902, 5203 to 5249, 5253 to 5278	5000	3400	2100	1550
DF-109, 111	4903 to 4905, 5250 to 5252	5000	5000	3075	①2275
DF-114, 116 to 118, 120 to 122, 124, 125	5279 to 5293, 5308 to 5335, 5340 to 5444, 5449 to 5493	10000	4150	2600	1900
DF-115, 119, 123, 126	5294 to 5307, 5336 to 5339, 5445 to 5448, 5494 to 5507	10000	3425	2175	1600
DF-200 to 206	5100 to 5120	3000	....	....	625
DF-300 to 304	4600 to 4623, 4700 to 4703	4000	2075	1300	950
DF-305, 306	4624 to 4633	4000	2350	1475	1075
DF-307	4634 to 4645	....	....	....	....
DF-500, 501	4800 to 4815	10000	4650	2950	2225
DF-603, 605 to 607, 611, 612	5600 to 5719, 5730 to 5799, 5800 to 5844	10000	2875	1825	1350
DF-608 to 610, 613	5720 to 5729, 5845 to 5859	....	....	....	....
DS-1 to 8	1000 to 1032	4000	1050	650	470
DS-9 to 12	1033 to 1090	4000	1875	1175	850
DS-100 to 109, 111, 115 119	1300 to 1441, 1464 to 1485, 1514 to 1528, 1551 to 1567	4000	1600	1000	725
DS-110, 114, 118	1442 to 1463, 1492 to 1513, 1539 to 1550	4000	2225	1275	1000
DS-113, 117, 120 to 122	1486 to 1491, 1529 to 1538, 1568 to 1596	4000	1950	1225	900
DS-200, 201	1900 to 1903	....	....	....	....

①Rating Benson to Mescal 2300.

UNLESS AUTHORIZED BY SUPERINTENDENT, ENGINES WILL NOT BE PERMITTED TO OPERATE IN THOSE TERRITORIES WHERE NO RATING IS SHOWN IN ENGINE RATING TABLE.

RATING OF ENGINES—In Units of 2000 Lbs. (Tons)

NOMINAL CLASS	ENGINE NUMBERS	Bowie to San Carlos	San Carlos to Cutter	Cutter to Pinal	Pinal to Globe	Globe to Miami	Miami to Globe	Globe to Pinal	Pinal to San Carlos	San Carlos to Tanque	Tanque to Bowie
DF-100	5200 to 5202	....	....	....	....	....	....	....	....	....	....
DF-101 to 108, 110, 112	4900 to 4902, 5203 to 5249, 5253 to 5278	5000	2200	1000	5000	2375	1975	1125	5000	3125	2325
DF-109, 111	4903 to 4905, 5250 to 5252	....	....	....	....	....	....	....	....	....	....
DF-114, 116 to 118, 120 to 122, 124, 125	5279 to 5293, 5308 to 5335, 5340 to 5444, 5449 to 5493	4400	2600	1200	10000	2850	1700	1325	10000	3700	2900
DF-115, 119, 123, 126	5294 to 5307, 5336 to 5339, 5445 to 5448, 5494 to 5507	3625	2200	1025	10000	2375	1425	1150	10000	3075	2400
DF-200 to 206	5100 to 5120	1400	850	395	3000	925	555	440	3000	1200	925
DF-300 to 304	4600 to 4623, 4700 to 4703	2200	1325	600	4000	1425	875	650	4000	1850	1450
DF-305, 306	4624 to 4633	2450	1500	700	4000	1625	975	775	4000	2100	1625
DF-307	4634 to 4645	....	....	....	....	....	....	....	....	....	....
DF-500, 501	4800 to 4815	....	....	....	....	....	....	....	....	....	....
DF-603, 605 to 607, 611, 612	5600 to 5719, 5730 to 5799, 5800 to 5844	3175	1850	875	10000	2025	1225	975	10000	2575	2025
DF-608 to 610, 613	5720 to 5729, 5845 to 5859	....	....	....	....	....	....	....	....	....	....
DS-1 to 8	1000 to 1032	1350	825	365	4000	900	520	405	4000	1150	900
DS-9 to 12	1033 to 1090	1975	1200	550	4000	1300	775	600	4000	1675	1300
DS-100 to 109, 111, 115, 119	1300 to 1441, 1464 to 1485, 1514 to 1528, 1551 to 1567	1675	1025	455	4000	1100	650	505	4000	1425	1100
DS-110, 114, 118	1442 to 1463, 1492 to 1513, 1539 to 1550	2950	1500	695	4000	1625	1150	775	4000	2150	1400
DS-113, 117, 120 to 122	1486 to 1491, 1529 to 1538, 1568 to 1596	1775	1250	575	4000	1350	800	625	4000	1750	1350
DS-200, 201	1900 to 1903	....	....	....	....	....	....	....	....	....	....

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